Abstract

The invention pertains to a method and an apparatus for removing a nitrogen oxide (NO_x) from a gas by bringing the gas into contact with a scrub liquid in a scrubber for converting the nitrogen oxide into molecular nitrogen (N_2), wherein the scrub liquid comprises a metal ion chelate and a biomass, after which at least a portion of the scrub liquid is subjected to a membrane separation process for separating at least part of the metal ion chelate, and the biomass and other solidified components, from dissolved components, wherein the membrane separation process comprises:

a) filtering at least a portion of the scrub liquid using a first membrane capable of permeating the metal ion chelate to provide a first retentate liquid comprising the biomass and other solidified components, and a first permeate liquid comprising at least part of the metal ion chelate and dissolved components, and

b) nanofiltering the first permeate liquid to give a second retentate liquid comprising the metal ion chelate and a second permeate liquid comprising dissolved components, and

c) recycling at least part of the second retentate liquid to the scrubber.